

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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(202) 426-8787

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Forwarded to:

Honorable William T. Coleman, Jr.
Secretary
Department of Transportation
400 7th Street, S.W.
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

I-76-9 through I-76-11

On January 1, 1968, at Dunreith, Indiana, three firemen and two policemen were injured when a burning tank car of ethylene oxide exploded during a train wreck. As the result of its investigation, the National Transportation Safety Board recommended improving the training methods available to local emergency organizations, so that they could be better prepared to handle future hazardous materials emergencies. Numerous actions have been taken by the Department of Transportation and by others since that recommendation, but casualties among emergency personnel continue. PAR 6-23

On June 4, 1971, two firemen were killed as they fought a fire involving explosives at Waco, Georgia. The fire had resulted from a truck accident. One fireman was killed and 39 injured as they fought a fire involving vinyl chloride which had spilled from a tank car at Houston, Texas, in October 1971. At Kingman, Arizona, in July 1973, 13 firemen were killed as they attempted to extinguish burning LPG. In August 1975, 8 firemen were killed during a fire which erupted as M/T Afran was being unloaded at a refinery in Philadelphia, Pennsylvania. In February 1976, 10 firemen were injured as fuel ignited during a rescue attempt following an aircraft accident at Van Nuys, California. In August 1976, two firemen were killed while fighting a fire which resulted from a gas pipeline leak at Allentown, Pennsylvania. That same month, 3 firemen were killed and 12 injured at Gadsden, Alabama, while fighting a gasoline fire. MIF-70-5
PAR-70-6
PAR-76-17
PAR-77-52
AZIA-78-1

Because of these and other similar casualties, the Safety Board has become increasingly concerned and was prompted to conduct a special investigation into such casualties during a hazardous materials accident.

On November 18, 1975, one fireman was killed and five other persons were burned while fighting a fire which erupted from a gasoline tractor-tank-semitrailer crash near Pursley, West Virginia. The truckdriver died in the crash. Gasoline leaked from the tank's manholes, formed a pool along the length of the trailer and vaporized. The vaporized gasoline engulfed the wreckage, and ignited when the acting officer in-charge attempted to cut the truck's battery cable. The injuries and death resulted from the ensuing explosion and fire.

The investigation disclosed that the emergency personnel were not prepared by their previous training or experience to safely handle this hazardous material emergency.

None of the responding firemen or other emergency personnel had previously contended with a bulk gasoline cargo tank accident and spill. They had been taught to rescue persons involved in vehicle accidents quickly and to disconnect battery cables to remove a possible source of ignition of spilled gasoline. These personnel had relied on these instructions at previous automobile collisions with satisfactory results. At Pursley, they encountered different circumstances due to the wreckage, the size of the spill, and the large area engulfed by the flammable vapors.

Their training program and references used during that program included courses in the fundamentals of firefighting offered by the West Virginia Department of Education. A textbook, "Vehicle Rescue, A System of Operations," was kept at the fire station. Ways to diagnose the dangers posed by hazardous materials and ways to identify the best actions to take in specific emergencies are not a part of this training. Their program is similar to other training programs in this respect. The ability of emergency personnel to adapt their actions to specific emergency conditions could be improved by incorporating the lessons learned in past hazardous materials incidents into their training and instructional materials.

The Safety Board's investigation further revealed that existing accident data gathering systems are not routinely used to enhance hazardous materials emergency training materials. Information about hazardous materials accidents and incidents is widely recorded. At least eight reports were prepared for governmental agencies after this accident. However, no procedure exists for gathering the safety lessons learned, converting them into improved training, and then providing that training to the emergency service personnel who must be prepared to cope with future incidents. To reduce the vulnerability of firemen and other emergency personnel in future hazardous materials emergencies, a procedure should be established so that needed information will be available to upgrade training programs.

Of the existing reporting systems, the Department of Transportation's uniform hazardous materials accident/incident reporting system seems best for gathering and disseminating information. It is a nationwide system, is widely known, and is mandatory. In addition, the Hazardous Materials Transportation Act requires that the Secretary of Transportation "establish and maintain

a central reporting system and data center to be able to provide law-enforcement and firefighting personnel of communities, and other interested persons and government officers, with technical and other information for meeting emergencies connected with the transportation of hazardous materials."

The act does not require that DOT develop or maintain training programs for emergency response personnel. While DOT does offer one such course, most such training is accomplished at State or local levels. The National Fire Protection and Control Administration also has training responsibilities. These agencies could transform the safety lessons from past emergencies into improved training programs.

Currently, however, DOT's hazardous materials accident/incident reporting system is not designed to support improved emergency training. The system's purpose is to "obtain improved information pertaining to the packaging of hazardous materials and to determine areas requiring additional emphasis and attention, both by rulemaking and in compliance activities."

The reporting system is also useful for other purposes; for example, the Safety Board uses the system to help identify unreasonable risks in hazardous materials transportation. However, current reporting forms do not require information about what emergency actions were taken, why they were taken, or what influence they had on the emergency's outcome. Thus, even if the Pursley accident had been reported to DOT in the prescribed manner, this safety information would not be available. Without such information, other agencies will have difficulty improving their emergency training programs.

The lack of this information also prevents effective evaluation of the technical advice that DOT makes available. The validity of the advice can be judged by the results it achieves. If these results are not available and, therefore, cannot be reviewed regularly, opportunities for improvements are likely to be overlooked.

Therefore, the National Transportation Safety Board recommends that the Department of Transportation:

I-76-9
Redesign its hazardous materials incident data reporting system so it will generate information about what emergency actions were taken, why they were taken, and what influence they had on the outcome of the emergency, for use in training firefighters and law-enforcement personnel to handle hazardous materials transportation emergencies. (I-76-9) (Class II, Priority Followup)

I-76-10
Develop a procedure to report such information regularly to Federal and State agencies with responsibilities for developing emergency training programs for law-enforcement and firefighting personnel. (I-76-10) (Class II, Priority Followup)

I-76-11
Develop a procedure to use the emergency response information on dealing with emergencies to review periodically the validity of advice which DOT provides to other agencies with regard to hazardous materials transportation emergencies. Periodically review the operational experience in meeting hazardous materials emergencies to assure that the practices recommended are appropriate. (I-76-11) (Class II, Priority Followup)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS and HALEY, Members, concurred in the above recommendations. HOGUE, Member, did not participate.


By: Webster B. Todd, Jr.
Chairman

THESE RECOMMENDATIONS WILL BE RELEASED TO THE PUBLIC ON THE DATE SHOWN ABOVE. PLEASE DO NOT RELEASE ANY INFORMATION CONTAINED HEREIN BEFORE THAT DATE.